Building Consistency Meeting

Residential

Date 5/06/2015 Recorder and minutes prepared by: Jay E. Garbus/Lon McSwain

Staff present: On File

Public present: **David Reynolds; Brian Hall; Jeff Gossett; Maryam Esmailiam; John Flinn; Ross Ritchie; Ashely Smith**

1) Uniformed stair treads on decks – Stair need to be uniform and tread depth cannot change.

2) Mono slab footers vs mud mats – Need approval from the inspector to pour mud mat. Picture of not a mud mat, this was a poured footing called a mud mat and failed.

3) Porch Shed roof attachment, prescriptive – Nothing in the code, looking at ways to do it. Deferring to the deck code appended M for now or engineering design.

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2012 NC Residential Code
Appendix AM104.1 Deck attachment. (131210 Item B-5)

AM104.1 Deck attachment. When a deck is supported at the structure by attaching the deck to the structure, the following attachment schedules shall apply for attaching the deck band to the structure.

AM104.1.1 All structures except brick veneer structures

METHOD	FASTENERS	8' MAX JOIST SPAN	16' MAX JOIST SPAN
1	5/8" Hot dipped galv. bolts with nut and washer[b] and 12d Common hot dipped galv. nails[c]	1@3'-6" o.c. and 2@8" o.c.	1@1'-8" o.c. and 3@6" o.c.
OR			
2	Self-Drilling Screw Fastener[d]	12" o.c. staggered	6" o.c. staggered

a. Attachment interpolation between 8 foot and 16 foot joists span is allowed.
b. Minimum edge distance for bolts is 2½ inches.
c. Nails must penetrate the supporting structure band a minimum of 1½ inches.
d. Self-drilling screw fastener shall be an approved screw having a minimum shank diameter of 0.195" and a length long enough to penetrate through the supporting structure band. The structure band shall have a minimum depth of 1-1/8". Screw shall have an evaluated allowable shear load for Southern Pine to Southern Pine lumber of 250 pounds and shall have a corrosion resistant finish equivalent to hot dipped galvanized. Minimum edge distance for screws is 1-7/16". A maximum of ½" thick wood structural panel is permitted to be located between the deck ledger and the structure band.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

4) Water resistant barrier R703.2 & Table 703.4 – For the covered porch need water resistant barrier.

R703.2 Water-resistive barrier. One layer of No. 15 asphalt felt, free from holes and breaks, complying with ASTM D 226 for Type 1 felt or other approved water-resistive barrier shall be applied over studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm). Where joints occur, felt shall be lapped not less than 6 inches (152 mm). The felt or other approved material shall be continuous to the top of walls and terminated at penetrations and build-

R317 item #8

8. All portions of a porch, screen porch or deck from the bottom of the header down, including posts, guardrails, pickets, steps, and floor structure. Coverings that would prevent moisture or water accumulation on the surface or at joints between members are allowed.

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5) Builders Insulation Certificate – For final need to have certificate posted. Can not be painter taped on. Certificate must be filled out and completed.

6) Residential sales center requirements – Need to meet the Accessibly Code Vol 1C. Need to check that heated space is correct if using garage as sales office. Do not need to stripe if parking space in driveway.

Requirements for sales centers in residence single family.

(Required to meet temporary structure section of Vol. 1-C section 1.2.10.1 NC Accessibility Code)

Permit requirements (2 ways to permit):

1. Structure can be permitted all at one time at initial permit stage to show total heated square footage of house and garage area (no garage indicated on application form).
2. If structure is permitted as having a garage then a second permit will be required to change that garage area to a sales center (Supplemental permit). This would mean that there would be 2 frame, 2 insulation and 2 final inspections on this site. Inspection request on both permits would need to be called for.

If the garage area is converted back from sales center to a garage then a new permit is required for that conversion to check structure and removal of HVAC registers will be required. Conversion permit back to garage with be the responsibility of the owner (either the builder at that time or the home owner if sold and converted).

Requirements:

1. Van Accessible access parking space with signage (8' parking, 8' access isle) per section 4.4.1. Space and access isle should be paved and must be marked to clearly define per section 4.2.3.
2. Access walkway 4' wide, ramps and any handrails if needed per Chapter 5 of Accessibility Code
3. Entrance door and all interior doors inside the sales office area must be 3/0 with lever handles and entrance door must have low profile threshold, door requirements listed in Chapter 7 of NC Accessibility Code.
4. 1 accessible bathroom facility either inside the office space or home with accessible route or an accessible porta-jon can be provided for the duration of the sales center usage. Location of the porta-jon and its access should be discussed with inspector.

Any concerns about meeting these requirements at a specific jobsite should be discussed with area field inspector prior to installation.

7) Subgrade form application (what and engineer can sign off-SOP) – If there is bad soil turn down and need to see corrections that need to correct need to call another footing inspection to verify. This is for one and two family homes only. Need second Subgrade form with new date if it is ok.

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ONE/TWO FAMILY SUBGRADE VERIFICATION FORM

FOR MECKLENBURG COUNTY CODE ENFORCEMENT USE ONLY

Date: _____

Project Information:

Subdivision: _____

Lot Number: _____

Street Address: _____

Building Permit #: _____

Builder/General Contractor:

Company Name: _____

Address: _____

_____

Phone Number: _____

Soil Engineering Company:

Name: _____

Address: _____

_____

Phone Number: _____

Project Manager: _____

Project Number: _____

Allowable Bearing Pressure: _____psf

Personnel from our firm have verified the bearing capacity of soils intended to support the residence noted above. Where appropriate, we have monitored proofrolling of residual soil prior to fill placement, conducted laboratory Proctor and field density tests on fill soil, and/or conducted dynamic cone penetrometer tests on subgrade soils. This work performed in accordance with accepted engineering practice as required by the North Carolina State Building Residential Code for One and Two Family Dwellings.

_____

Signature/Seal of licensed professional engineer

Form revised: March 23, 1999
May 20, 2005
May 6, 2015

Instructions for use of Mecklenburg County Subgrade form.

The State of NC requires the code official to perform a footing inspection under section 107 of the NC Administrative Code. In certain situations as indicated in chapter 4 of the NC Residential Building Code, additional testing is required as outlined below. A task force consisting of representation from the industry, engineering firms and code officials reviewed the use of this form as well as the language contained on this document. No modification to this form allowed except filling in the required information and appropriate letterhead. This subgrade will be required under the following conditions.

1. A subgrade verification form used is for residential one and two family dwellings and townhouses only.
2. All information filled out & engineer's seal is required, seal signed and dated.
3. Subgrade form is **required** on all **fill** lots for verification of bearing capacity of fill material.

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4. **Upon inspection** if a code official finds the soil to be in **good condition** but lot appears to be a fill lot, the inspector shall disapprove with a neutralizing code used so that there are no fee/trip charges or a defect failure charges to the permit holder. In the inspection notes the inspector will indicate "**Pour at own risk pending subgrade verification form**". The subgrade form will be required to be present at the next inspection and the permit holder will be responsible for calling back in the footing inspection with the next inspection request. Upload Subgrade form online as a PDF under the permit in question.
5. **Upon inspection** if the code official finds that an area has **questionable soil** conditions then an option will be given to the permit holder to dig out to solid ground or have tested by a geotechnical engineering company. This inspection would result in a disapproval. The following scenarios could occur with the testing of the footer:

   a) After testing by engineer or designated personnel and the soil is determined to be adequate for required bearing, the permit holder can proceed with concrete placement. The footing inspection needs to be requested again with next inspection (such as a foundation inspection- FT/FD) and the subgrade letter uploaded to the permit for inspector to view and approve **(No corrective measures needed, no re-inspection required by inspector).**

   b) After testing by engineer or designated personnel and the soil was unsuitable for a certain depth, the engineering firm's representative can remains on site while soft areas removed. After removal of questionable soils and testing the footer base is adequate, the permit holder can proceed with the placement of concrete. The footing inspection needs to be request again with the next inspection (such as a foundation inspection- FT/FD) and the subgrade letter uploaded to the permit for inspector to view and approve. **(Note: corrective measures require digging out soft areas and retesting while engineering firm onsite, no re-inspection required by inspector).**

   c) After testing by engineer or designated personnel, the soil is determined to be unsuitable and repairs needed such as digging out and adding gravel, reinforcement installation or pile/caissons needing engineering design, repairs made as directed and another footing inspection requested. Inspector will need to review repairs made prior to concrete placement and review correction per engineering design or letter seal by a NC Licensed Professional Engineer. Engineered repair design or letters should be uploaded to the permit for inspector review during re-inspection **(Engineered repairs require a re-inspection).**
6. **Upon inspection** if the code official finds that an area has **questionable soil** conditions and the site has already been tested the inspector shall document the specific area of concern. The inspection will be disapproved with appropriate notes asking the soil company to revisit the site for review of the specific areas of concern and new subgrade letter ***(example: "Rear house foundation wall 6' in from left side for 12' was questionable and soft at time of inspection, please retest this area")***. After review by the appropriate engineering firm one of three steps as outlined in **5a**, **5b**, **5c** above should be followed.
7. The subgrade verification form is required on any lot that the building design requires more than 2000psf soil bearing capacity. All required bearing requirements **over 2000psf** requires testing per chapter 4 of the NC Residential Building Code.

8) Solid L block/slab bonding – There is a block made for the application and can be used.

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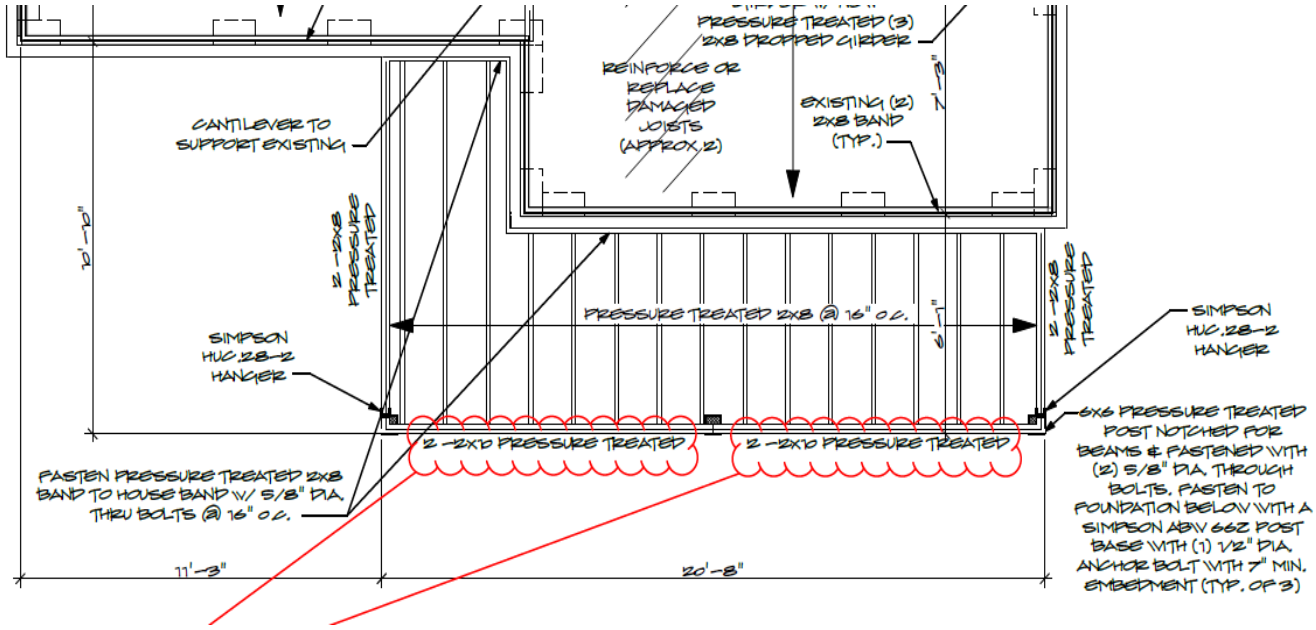
9) Pier/curtain wall anchor location – Need to be in both corners and block and brick bonded. Need to communicate with the inspector if bolt will be hidden by framing. Department does not accept pictures to show bolts.

10) Deck construction not per Appendix M, engineering option – Southern pine number 2 tables changed January 1st and still have span problems over spanning. Need to show thru engineering how code spans are met.



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11) Girder support over piers, Table R403.1a footnote 3 – Change to code on placement of girder. Need full bearing on piers.

TABLE R403.1a
PIER[1] AND FOOTING[2] SIZES FOR SUPPORT OF GIRDERS

	1 (One) STORY		2 (Two) STORY		2-$^1/_2$ (Two & One Half) STORY	
Area[5]	Pier[3,4]	Footing	Pier[3,4]	Footing	Pier[3,4]	Footing
50	8″ × 16″	1′–4″ × 2′–0″ × 8″	8″ × 16″	1′–4″ × 2′–6″ × 8″	8″ × 16″	1′–4″ × 2′–6″ × 8″
100	8″ × 16″	1′–4″ × 2′–0″ × 8″	8″ × 16″	2′–0″ × 2′–0″ × 10″	16″ × 16″	2′–6″ × 2′–6″ × 10″
150	8″ × 16″	2′–0″ × 2′–0″ × 8″	16″ × 16″	2′–8″ × 2′–8″ × 10″	16″ × 16″	3′–0″ × 3′–0″ × 10″
200	8″ × 16″	2′–4″ × 2′–4″ × 10″	16″ × 16″	3′–0″ × 3′–0″ × 10″	16″ × 16″	3′–11″ × 3′–8″ × 1′–0″
250	—	—	16″ × 16″	3′–4″ × 3′–4″ × 1′–0″	16″ × 24″	4′–0″ × 4′–0″ × 1′–0″
300	—	—	16″ × 16″	3′–8″ × 3′–8″ × 1″ –0″	16″ × 24″	4′–6″ × 4′–6″ × 1′–0″

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1 pound per square foot = 0.0479 kPa.

1. Pier sizes are based on hollow CMU capped with 4 inches of solid masonry or concrete for 1 (one) story and 8 inches of solid masonry or concrete for 2 (two) and 2$^1/_2$ (two and one half) story houses or shall have cavities of the top course filled with concrete or grout or other approved methods. Mortar shall be Type S.
2. Footing sizes are based on 2000 psf allowable soil bearing and 2500 psi concrete. This table is based upon the limitations of a tributary area using dimensional framing lumber only.
3. Centers of piers shall bear in the middle one-third of the footings. Girders must have full bearing on piers. Footings shall be full thickness over the entire area of the footing.
4. Pier sizes given are minimum. For height/thickness limitations see Section R606.6.
5. Area at first level supported by pier and footing (square foot).

12) PT Sills on interior piers (DOI shim interpretation for girders) – Need similar or grader material used.

INFORMAL CODE INTERPRETATION

NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
1202 Mail Service Center, Raleigh, NC 27699-1202
919-661-5880

Wood Girder Plates

Code: 2012 Residential Code
Section: R502.6

Date: July 3, 2012
Revised: March 28, 2014

Question:
Can wooden plates (not wedges) be used between wood girders and foundation piers?

Answer:
Yes. There is nothing in the code that prevents the use of wooden plates, but there is also nothing in the code that provides prescriptive design information for them either. The code does not restrict a wood girder from being out of level; so, we have to assume that plates to reduce that condition are a step in the right direction if the plates do not compromise the structural integrity of the pier/girder relationship.

The following guidelines will apply:

1. Plates would have to meet the requirement of Section R502.6 for bearing surface as well as applicable requirements for protection against decay in Section R317.
2. The minimum width of a plate must be the width of the girder that is being supported.
3. The minimum length of a plate must be the width of the pier on which it rests.
4. The maximum depth/thickness of a plate is restricted to less than 4 inches because of the available heights of standard masonry.
5. Multiple member plates (i.e. 2 or more pieces of wood stacked on top of each other) must have the members fastened together to form a single unit and the single unit plate must be fastened to the girder to prevent independent movement.
6. The plate material must be a minimum perpendicular to grain compressive strength equal to the wood girder material.
7. Horizontal forces are not resisted at the plate location.

For the purposes of this interpretation "wooden girder plate" is a flat member consisting of a single or multiple pieces of wood with relatively even thickness that is placed between the top of a pier and the bottom edge of a wood girder where it rests on the pier. This may also be referred to as a shim, but obviously cannot be of a wedge shape.

Keywords:
blocking, foundation

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13) Townhouse soffit protection-fastening requirements – Need to make sure protection is installed correctly.

14) Field frame violation examples (crawlspace) – Check for girder bearing, piers needed, headers and point loads carried down to piers.

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Approved By ___Lon McSwain_____ Date _5/15/2015_____